

THE OHIO JOURNAL OF SCIENCE

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No. 4

REPORT OF THIRTY-SEVENTH ANNUAL MEETING OF THE OHIO ACADEMY OF SCIENCE

The Thirty-seventh Annual Meeting of the Ohio Academy of Science was held at the Ohio State University, Columbus, on April 15 and 16, 1927, under the presidency of Dr. William McPherson. Approximately 150 members and quite a large number of visitors were in attendance at the various general and sectional meetings. As shown elsewhere in this report, the scientific program contained a large number of excellent papers and addresses, covering a wide range of topics, many of them eliciting an unusual interest.

Sixty-nine new members were elected so that at the close of the meeting the membership of the Academy stood at 503.

The following is the general program of the meeting:

FRIDAY, APRIL 15.

- 9:00 A. M.—Business meeting.
- 10:30 A. M.—Presentation of papers in general session.
- 1:00 P. M.—Presentation of papers in sectional meetings.
- 6:30 P. M.—Annual banquet, Ohio Union.
- 8:00 P. M.—Invitation address by Prof. C. E. McClung, Professor of Zoology, University of Pennsylvania, on "The Mechanism of Heredity," in the University Chapel.

SATURDAY, APRIL 16.

- 8:30 A. M.—Adjourned business meeting.
- 9:30 A. M.—Presentation of papers in general session, including a lecture by Dr. Robert A. Millikan, Director of the Norman Bridge Laboratory of Physics, California Institute of Technology, on "The Birth of a Light Ray."

MINUTES OF THE BUSINESS MEETINGS.

The first business meeting was called to order by President McPherson at 10 A. M., Friday, April 15, 1927, in Room 100 of the Botany and Zoology Building, Ohio State University, with about 50 members present.

The President announced the following committee appointments:

Committee on Membership—Geo. D. Hubbard, H. M. Benedict, W. H. Shideler.

Committee on Resolutions—E. L. Moseley, W. F. Mercer, H. M. Benedict.

Committee on Necrology—L. B. Walton.

The Academy then proceeded to the election of an *Auditing Committee*. S. R. Williams and F. C. Waite were elected.

The following *Nominating Committee* was elected by ballot by the Academy: S. R. Williams, R. J. Seymour, C. F. Moses, M. E. Stickney, W. H. Alexander, and Harold E. Burtt.

The reports of the following officers and standing committees were called for, read and ordered filed: The Secretary, the Treasurer (read by Prof. Herbert Osborn in the absence of the Treasurer), the Executive Committee, the Publications Committee (no report), the Trustees of the Research Fund, the Library Committee, and the Committee on State Parks and Conservation.

A second business meeting was held in the same place on Saturday, April 16, at 8:45 A. M. President McPherson opened the meeting by extending words of welcome and good wishes on behalf of President Rightmire, President of the Ohio State University, who was unable to be present. At this meeting the reports of special committees on membership, nominations, necrology, auditing, and resolutions were made and accepted.

On motion of Dr. R. J. Seymour, seconded by Prof. F. O. Grover, it was voted to adopt the recommendation of the Executive Committee amending Chapter 1, Section 1, of the By-Laws, increasing the annual dues of the Academy from \$2.00 to \$2.50 per year, effective at the beginning of the next fiscal year.

It was also agreed that the sum of \$1.50 per member should be paid annually to the *Ohio Journal of Science*.

Upon motion duly seconded the Academy extended a vote of thanks to the *Ohio Journal of Science* for its splendid cooperation and contributions in the past.

Upon motion of Dr. Edward L. Rice, seconded by Prof. L. B. Walton, the question of immediate financial relief to the *Ohio Journal of Science* was referred with power to the incoming Executive Committee.

At the suggestion of the chairman of the Auditing Committee it was voted to refer the Treasurer's report to the auditor of the Ohio State University for final auditing. (The chairman explained that this action is necessary because of the insufficiency of the data in the possession of the Auditing Committee, due to the sudden and unexpected absence of the Treasurer from the meeting).

The amendment to the Constitution proposed at the last annual meeting (see Ann. Rep., 36th Meeting, p. 25), amending Article III, Membership, was briefly explained by the Secretary and unanimously agreed to.

At the suggestion of the chairman of the Committee on State Parks and Conservation, the President was authorized to appoint a sub-committee from the Standing Committee on State Parks and Conservation to work with the State Forester in the formulation of regulations for the protection of the plant and animal life of the State forests.

The Secretary then read a communication from Prof. H. M. Benedict extending an invitation from the University of Cincinnati to the Ohio Academy of Science to hold the next annual meeting in Cincinnati. Moved by Professor Walton that the Academy express its appreciation of the invitation and that the matter be referred without recommendation to the Executive Committee. Carried.

The Secretary was requested to extend the greetings and good wishes of the Academy to Mr. Joe H. Todd, Wooster, in recognition of his having "traveled past his 90th milestone."

Adjourned 9:40 A. M.

REPORTS.

Report of the Secretary.

COLUMBUS, OHIO, April 15, 1927.

To the Ohio Academy of Science:

The routine affairs of the secretary's office—and they were more numerous than ever and increasing—were taken care of as promptly and as efficiently as circumstances would permit.

The first task of major importance after the last annual meeting was the preparation of the minutes of the meeting and the reports of officers and committees for publication as the "Proceedings of the Ohio Academy of Science," Thirty-sixth Meeting. Through the courteous cooperation of the Publications Committee and the Editor of the *Ohio Journal of Science* these proceedings were ready for distribution very much earlier than usual, together with a suitable title page and contents to Volume VII. prepared by Mrs. Ethel M. Miller. A summary was also prepared for and published in *Science*.

In the latter part of May (May 28, 29 and 30, 1926) the Geology Section of the Academy, under the leadership of Vice-President Wilber Stout, ably assisted by Prof. J. Ernest Carman, organized and successfully carried out a field trip into northern Ohio for an inspection and study of the Silurian and Devonian Systems of the Sandusky Bay Region. This trip took the party into Seneca, Sandusky, Ottawa and Erie counties. We commend the Geology Section on its field work.

The Ohio Academy of Science having received a very courteous invitation from the President, the Trustees and the Faculty of Western Reserve University, in the City of Cleveland, to be represented at the ceremonies commemorating its Centennial on the 12th and 13th of November, 1926, the Secretary with the hearty approval of the President requested Dr. Dayton C. Miller, of the Case School of Applied Science, to act as the representative of the Academy on this occasion. Dr. Miller kindly agreed to do so and sends the following report:

CLEVELAND, OHIO, March 9, 1927.

*The Ohio Academy of Science, Dr. W. H. Alexander, 16 East Broad Street,
Columbus, Ohio.*

MY DEAR DR. ALEXANDER:—In accordance with your request, I attended the ceremonies commemorating the Centennial of Western Reserve University held on November 12 and 13, 1926. I presented the greetings of The Ohio Academy of Science and formally signed the book of delegates representing the Learned Societies of America. I attended various exercises. The principal subjects considered were the Junior College Movement, the Training of Teachers and Research and Training for Research. A number of important addresses were given. I am enclosing a program which gives the details regarding the various papers presented. I am, also, enclosing the formal list of delegates. You will find the Ohio Academy of Science listed near the top of the fourth page of the list.

I am sure that the University appreciated the interest and good will of the various societies which sent delegates and it was a privilege and an honor to be permitted to represent the Ohio Academy of Science.

Very truly yours,

DAYTON C. MILLER.

As shown on page 25 of the Proceedings of the Thirty-sixth Annual Meeting, the Treasurer, Dr. A. E. Waller, was made the representative of the Academy at the International Botanical Congress that assembled at Ithaca, N. Y., in August, 1926, and as such Doctor Waller submits the following report of the meetings:

COLUMBUS, OHIO, August 30, 1926.

Dear Mr. Alexander:

As delegate of the Ohio Academy of Science, I attended the International Plant Congress held at Ithaca, New York, during the period of August 16th to 23rd. Over eight hundred members attended and all countries engaged in productive scientific work were represented. Most of the addresses were read by the foreign delegates, but round table discussions and informal conversations formed an important phase of the Congress.

I was so fortunate as to be asked by Professor Schaffner to accompany him in the journey east, thereby cutting in half my railroad expenses.

With all good wishes,

Sincerely yours,

A. E. WALLER.

The Secretary attended the Philadelphia meeting of the American Association for the Advancement of Science, in December, 1926, and represented the Academy at all meetings of the Council. He was honored by the President of the Association with appointment on the nominating committee of five and also served as one of the two tellers at the election of the President. On December 29, 1926, at an informal meeting of the representatives of the affiliated state academies at which eleven of the nineteen affiliated academies were represented it was decided to form a temporary organization and the undersigned was made the temporary chairman. The purpose of this meeting, as stated by Dr. McGill, secretary of the Tennessee Academy of Science, at whose suggestion the meeting was called, was:

"To effect an organization of the representatives of the affiliated state academies in the Council of the American Association for the Advancement of Science at this time in order to arrange for a possible round-table discussion by the representatives on the occasion of the next meeting of the American Association for the Advancement of Science at Nashville, Tennessee, in December, 1927."

In the latter part of March of this year, we received a letter from the Permanent Secretary of the American Association for the Advancement of Science, Dr. Burton E. Livingston, advising that the Association was planning a special campaign for new members and that a portion of the campaign would be related to the affiliated academies of science, and inclosing the first draft of the proposed circular letter regarding which he asked for critical suggestions. The letter as approved, gives due emphasis to the arrangement of affiliation between the academies and the Association. Doubtless by this time all members of the Ohio Academy who are not already members of the A. A. S. have received this letter and we hope have given it very careful consideration. As you know, members of the Academy under the terms of affiliation, are exempt from the payment of the \$5.00 initiation fee and fifty cents out of the \$5.00 annual dues is returned to the Academy.

In this connection, it may be proper to say that during the past few weeks the secretary has given much time and effort in calling to the attention of persons eligible to membership the claims of the Academy and through the cordial cooperation of members of the Academy we are able to present for your consideration at this meeting 43 nominees for membership.

Respectfully submitted,

WILLIAM H. ALEXANDER, *Secretary*.

Treasurer's Report for the Year 1926-1927.

To the Ohio Academy of Science:

Your Treasurer submits the following report of the financial condition of the Academy. The period covered is from April 1, 1926, to March 31, 1927.

RECEIPTS.

Cash Balance of April 1, 1926.....	\$ 716.08
Interest on certificate of deposit.....	39.00
Dues from members and allowance from the A. A. A. S.....	922.14
Total receipts, Exhibit A.....	\$1,677.22

DISBURSEMENTS.

C. E. Wilson, for Academy poster.....	\$ 1.50
The Neil House, Dr. Johnson's account.....	17.30
Wm. H. Alexander, Secretarial expenses.....	22.67
Wm. H. Alexander, Secretary's honorarium.....	100.00
Dr. Douglas Johnson, travel expenses for lecture.....	54.00
Diehl Office Equipment Company.....	1.85
A. E. Kraus Print Shop, programs, etc.....	86.00
Hiss Stamp Company.....	1.15
Wm. H. Alexander, Secretarial expenses.....	4.88
Spahr & Glenn Company, bill forms and envelopes.....	5.00
The Columbian Building & Loan Company, certificate of deposit.....	350.00
A. E. Waller, travel expenses to International Plant Congress.....	19.72
Helen Coleman, assistance to Treasurer.....	9.24
Spahr & Glenn Company, 600 due slips.....	3.75
Postmaster, Columbus, Ohio, stamped envelopes.....	26.92
C. G. Shatzer, expenses for attending executive meeting.....	2.50
Spahr & Glenn Company, envelopes.....	3.25
Mrs. Katherine D. Sharp, refund on overpayment.....	2.00
Schmitt Printing Company.....	24.25
W. H. Alexander.....	33.90
The Ohio Journal of Science for 1927 account.....	400.00
Eight returned checks for \$2.00 each.....	16.00
Total disbursements, Exhibit B.....	\$1,185.88

BALANCE SHEET.

Exhibit A—Receipts.....	\$1,677.22
Exhibit B—Disbursements.....	1,185.88
Cash balance on hand April 1, 1927.....	\$ 491.34

There is one uncanceled check outstanding. The Secretary's honorarium has always been paid at the beginning of the period following the Annual Election and is to be deducted from the present balance.

The same is true for the expenses of the present meeting. Against this, there will be some additional income from the allowance of the A. A. A. S. and the sale of publications. But there is no denying the fact that there will be a smaller balance in the Treasury than last year. The disbursements are about one hundred and fifty dollars greater during the past calendar year than during the 1925-1926 period. Estimating the current liabilities from last year's there will probably be an unexpended balance of one hundred and fifty dollars in the Treasury to last until the next collection of membership dues.

Respectfully submitted,

A. E. WALLER, *Treasurer.*

Report of the Auditing Committee.

COLUMBUS, OHIO, April 16, 1927.

To the Ohio Academy of Science:

Technically there is nothing here to audit—no bank books, vouchers, receipts, etc. The mathematics presented is correct. The committee recommends that the report when completed be sent to the auditor of the Ohio State University with request that he audit same.

Respectfully submitted,

S. R. WILLIAMS,

F. C. WAITE,

Auditing Committee.

Report of the Executive Committee.

COLUMBUS, OHIO, April 15, 1927.

To the Ohio Academy of Science:

The Executive Committee held three meetings during the year now ending.

The first meeting was held, at the call of the President, on October 23, 1926, at the Faculty Club rooms, Ohio State University, with the President and three members (Shatzer, Waller and Alexander) present. The following items of business were presented, discussed and agreed upon:

1. The action of the President and Secretary in designating Dr. Dayton C. Miller as the representative at the ceremonies commemorating the Centennial of the Western Reserve University at Cleveland was approved.

2. Four nominations to membership in the Academy were approved.

3. The resignation of Prof. Charles H. Skinner from the office of Vice-President of the Physical Sciences Section was accepted.

4. The matter of additional financial support to the Ohio Journal of Science, referred to this committee by the Executive Committee last year (see page 25, Pro. 36th Ann. Meeting), was discussed and it was finally decided to arrange another meeting of the Executive Committee at an early date and to invite the editor and business manager of the

Journal to be present and give the committee a full statement of the needs, proposed plans, etc., of the Journal.

5. That Mrs. Ethel M. Miller be made a member of the Academy without dues and that the action of the President in putting her in charge of all Academy publications be approved.

6. That the actual travelling expenses of the Executive Committee when in attendance at its meetings be paid out of the funds of the Academy.

7. That an intensive campaign for new members be inaugurated at once under the leadership of the Treasurer, Dr. A. E. Waller.

The second meeting of the Committee was held at the hospitable home of President and Mrs. McPherson, 198 Sixteenth Avenue, Columbus, on December 16, 1926, with all members of the committee present and, by invitation, Dr. F. H. Kreckler, editor of the *Ohio Journal of Science*; Prof. L. H. Tiffany, business manager of the *Ohio Journal of Science*, and Dr. J. H. Schaffner, a member of the editorial board of the *Journal*. The following matters of business were taken up and disposed of:

1. Five applications for membership in the Academy were presented and approved.

2. Prof. Alpheus W. Smith was unanimously elected Vice-President of the Physical Sciences Section, vice Prof. Charles H. Skinner, resigned.

3. The primary purpose of the meeting was then taken up, namely, the matter of additional financial support from the Academy to the *Ohio Journal of Science*. The editor and the business manager of the *Journal* then presented a detailed financial statement for the years 1921, 1922, 1923, 1924, 1925 and 1926, and concluding with the following general statements:

SUMMARY STATEMENTS.

1. During the world war and because of inadequate funds previously, the Journal had accumulated a deficit of nearly \$800.00 when the present manager was appointed.

2. That deficit will be decreased to about \$600.00 by the end of 1926.

3. Since the printers do not render accounts till the end of the year, and since the University allowance and the Academy dues are paid in advance, we are able to meet one year's bills by the next year's allowances.

4. The balance remaining is uncomfortably small, even if we had the deficit removed.

5. This situation gives no opportunity for expansion on the part of the Journal.

6. Authors must pay for all cuts for articles and this is not required by any other scientific publication.

Doctor Kreckler pointed out that the *Journal* was seriously handicapped not only by the deficit that has been running for several years, but by lack of funds with which to expand, and expressed the feeling that in view of the service rendered by the *Journal* to the Academy, the Academy could well increase its support, at least to the extent of 50

cents per member. Professor Schaffner was also of the same opinion and expressed the further belief that many members joined the Academy solely for the *Journal*.

After considerable discussion, pro and con, it was finally voted that the Executive Committee recommend to the Academy at its next annual meeting that the By-Laws (Chapter 1, Section 1) be so amended as to increase the annual dues from \$2.00 per annum to \$2.50 per annum and that of this amount \$1.50 be paid to the *Ohio Journal of Science*.

The third meeting of the committee was held at the Faculty Club rooms, Ohio State University, on January 31, 1927. At this meeting it was voted to accept the invitation of the Ohio State University to hold the next annual meeting of the Academy on its campus and the time for this meeting was fixed as April 15th and 16th, 1927.

It was also unanimously agreed that the Academy could do no better in the way of an invitation speaker than to accept the very generous offer of President McPherson to do what he could to so arrange the series of lectures by Dr. Robert A. Millikan, of California, that the members of the Academy could easily take advantage of them and thus hear from one to three. It was further agreed that effort should be made to secure Dr. J. H. McGregor, of Columbia University, and possibly Dr. C. E. McClung, of the University of Pennsylvania.

Respectfully submitted,

THE EXECUTIVE COMMITTEE,
By W. H. ALEXANDER, *Secretary*.

Report of the Trustees of the Research Fund.

To the Members of the Academy:

Our report this year may be very brief, as we have made no grants and, until yesterday, had received no applications. The funds have been invested and interest accumulations added so that we have a total fund to date of \$1,520.41, of which \$1,300.00 is invested in bonds and \$100.00 in certificate of deposit at interest.

Omitting the invested \$1,300.00, the account stands as follows:

Balance from last year.....	\$ 83.91
Interest additions.....	136.50
Total.....	<u>\$220.41</u>
Invested in Certificate of Deposit.....	100.00
Balance subject to check.....	<u>\$120.41</u>

Unless grants are made during the year, it will be our policy to invest so as to secure returns on the available funds, but we will be pleased to receive applications or recommendations for appropriate projects.

Respectfully submitted,

HERBERT OSBORN,
EDWARD L. RICE,
GEO. D. HUBBARD,
Trustees.

April 15, 1927.

*Report of the Auditing Committee.**To the Ohio Academy of Science:*

We find adequate vouchers showing for April 14, 1927, \$1,400.00 of invested funds and \$120.41 balance in checking account of Trustees of the Research Fund. This is in accord with the report made.

Respectfully submitted,

S. R. WILLIAMS,
F. C. WAITE,
Auditing Committee.

Report of the Committee on State Parks and Conservation.

(Informal)

Prof. Herbert Osborn, Chairman of the Committee on State Parks and Conservation, made an informal report stating that there had been no meeting of the committee and no formal report could be presented at this time. He stated that in connection with the question of preservation of the forest tracts, which offer perhaps the most promising field for the wider preservation of our native fauna and flora, that he had had a conference with Mr. Secrest, the state forester, and had been assured of his desire to aid in this matter and that he would welcome a special committee of advisers from the Academy to formulate regulations intended to preserve the biological status in the state forests. It is evident that the interests of tourists, picnickers, sportsmen, hunters, foresters and biologists are likely to clash at times and it is desirable to adopt plans for the different forest tracts that will meet the different purposes as fully as possible while providing the utmost security for the native plants and animals they contain.

To provide such a committee of advisers it was moved and voted that the President of the Academy be authorized to appoint a sub-committee of the standing committee on State Parks and Conservation to work with the State Forester in the formulation of regulations for the protection of the plant and animal life of the state forests.

(In compliance with the favorable action of the Academy on the above recommendation, President Benedict, on June 2, 1927, appointed the following sub-committee: Herbert Osborn, E. Lucy Braun and Arthur R. Harper).

Report of the Library Committee.

COLUMBUS, OHIO, April 15, 1927.

To the Ohio Academy of Science:

An accurate account of the accessions to the Academy Library of the past ten years has been secured during the year, and a card catalogue has been nearly completed giving in detail these records. The carrying through of this important work is due to enthusiasm and energy of Mrs. Ethel M. Miller, of the Botany-Zoology Library of the University, with the cooperation of the staff of the General University Library.

In 1917 the Academy voted that a suitable printed plate, to be paid for by the Academy, be put in the books given to the Ohio State University Library, and in its accessions.

The University Library possesses a handsome engraved Gift Book Plate which it would be glad to use in place of the Academy's very simple printed plate. The library will supply the plates and pay for the printing of "The Ohio Academy of Science" on them. The Library Committee of the Academy appreciates and accepts this offer for the Academy.

The sales of Academy publications by Mrs. Miller have been highly satisfactory. A statement of these sales is included in Mrs. Miller's appended report. The Chairman of the Committee has checked these sales and audited Mrs. Miller's books, and finds her accounts to be correct and her books to balance.

Respectfully submitted,

F. O. GROVER, *Chairman.*

Report of Mrs. Miller for the Ohio State University Library.

COLUMBUS, OHIO, April 15, 1927.

To the Ohio Academy of Science:

The year that has now passed has been an exceedingly busy and pleasant one. As the exchange work was wholly new to me, it took some time to familiarize myself with the periodicals and with the correspondence of the last ten years.

The card catalog is practically finished for the exchanges of the Academy, but is not yet complete for those that receive only the *Journal of Science*. Appreciation is due to the University Library assistance and the time necessary to do the work.

The sale of publications has gone on as usual, amounting to \$69.40 to date. Two sales, totaling \$8.50 have been made so recently that payment has not yet been received. The difference between these two sums, namely, \$60.90, is ready to be handed to the Treasurer, together with an additional sum of \$13.15, a check for which dated December 20, 1923, was found last summer in a filing case in the Botany office. The Treasurer asked me to deposit this check in my account and to hand it to him with the full amount of this year's sales. The interest on the sums deposited from the sales of the Academy Proceedings and Special Papers and the *Ohio Journal of Science* for the last half of 1926 amounted to \$1.84. The Treasurer agreed to let this remain on deposit.

The Proceedings of the Thirty-sixth Meeting were received in August and were mailed at once upon receipt of the title pages to 442 members and to 84 exchanges. The Academy publications and the *Ohio Journal of Science* have been sent to twenty-five institutions to fill in their sets of these publications and volumes have been received from thirty-five places to fill in our sets of their publications.

No systematic effort has been made to obtain new exchanges, but 41 have been secured with 34 institutions. Ten of these institutions will receive the Academy Proceedings and Special Papers, five will

receive both the Proceedings and the *Ohio Journal of Science* and to nineteen the *Journal* only will be sent. Eighteen former exchanges have been resumed.

I am hoping that as soon as it is possible to do so, the Academy will publish something in addition to the Proceedings to be used as an exchange and to be sold. It has now been fifteen years since the last Special Paper was published. As long as the Proceedings contain only the business reports of the meetings, practically the only new exchanges that can be secured are similar reports of other organizations. Sets of the Special Papers have been sent in several instances, but it seems only fair to continue to send something in return for a periodical that is being published and sent regularly to the Academy.

The most interesting feature of the work this year has been the correspondence with other institutions, both in this country and in all parts of the world.

Respectfully submitted,

ETHEL M. MILLER,

For Ohio State University Library.

Report of the Committee on the Election of Fellows.

To the Ohio Academy of Science:

A meeting of the Committee on the Election of Fellows was held in the office of the Graduate School, Ohio State University, Columbus, on the evening of April 14, 1927, with a quorum present. Of the candidates nominated and considered, seven received the necessary favorable votes and were declared elected. In accordance with custom, the Fellows will be personally notified, and the list will be published in the Proceedings of this meeting.

Respectfully submitted,

WILLIAM H. ALEXANDER,

Secretary, for the Committee.

Columbus, Ohio, April 16, 1927.

The following is a list of those elected Fellows:

J. HOBART HOSKINS

ARTHUR W. LINDSEY

GARRY CLEVELAND MYERS

A. SOPHIE ROGERS

EDMUND MAUTE SPIEKER

GRACE ANNE STEWART

ALLYN COATS SWINNERTON

Report of the Committee on Membership.

To the Ohio Academy of Science:

Applications, each signed by two members of the Academy, have been received from the following named persons and your committee unanimously recommends their election to membership in the Academy,

said membership to become effective upon the payment of one year's dues, viz.:

BABBITT, MISS RUTH VARIE, 325 W. Eighth Ave., Columbus.
BENNETT, MISS MARY, 101 N. Center St., Westerville.
BIELSTEIN, CLYDE H., Westerville.
BILLESON, T. J., Sinking Spring.
BRACKEN, MISS DOROTHY M., 1016 Eighth St., Lorain.
BRANT, ARTHUR M., Lord Hall, O. S. U., Columbus.
CHAMPION, MILTON M., Box No. 60, Men's Building, Oberlin.
CHASE, MISS CATHERINE, Baldwin Cottage, Oberlin.
CONDRIN, J. M., 1890 East 105th St., Cleveland.
COLEY, LUSTER MANRING, Ohio Agricultural Experiment Station, Wooster.
COPELAND, HERMAN A., 64 N. Congress St. (temp.), Athens.
COYLE, MISS ELIZABETH E., 360 E. Bowman St., Wooster.
CRUM, CARLOS L., Sinking Spring, Ohio.
CUYLER, W. KENNETH, Cleveland Museum Natural History, 2717 Euclid Ave., Cleveland.
DUNHAM, W. E., Ohio State University, Columbus.
EASTERLING, G. R., R. F. D. No. 4, Athens.
EDWARDS, RAY LEE, Physics Department, Miami University, Oxford.
ENGLE, O. H., 122 Rice St., Alliance.
FEARING, FRANKLIN, Ohio Wesleyan University, Delaware.
FIELDS, PAUL E., Delaware.
FITZGERALD, PAUL E., Harrod, Auglaize County.
FLETCHER, FRED, Miami University, Oxford.
FULFORD, MISS MARGARET, Sutton Ave., Mt. Washington, Cincinnati.
GANS, DR. HOWARD M., 1067 Thornhill Drive, Cleveland.
HALE, DR. KELLY, Wilmington.
HANSEN, WALTER, 190 E. College St., Oberlin.
HARROD, J. R., 213 E. University Ave., Ada.
HAYNES, JOHN, 33 W. Eleventh Ave., Columbus.
HEDRICK, JOYCE, 13 Bishop Hall, Oxford.
HERTZ, MRS. MARGUERITE R., 9511 Lamont Ave., Cleveland.
HOLSOPPLE, DR. QUINTER, Western Reserve University, Cleveland.
KAYSER, WILLIAM, 211 W. Mechanic St., Wapakoneta.
KEPLINGER, MRS. DOROTHEA DOANE, 3147 W. 88th St., Cleveland.
KILPATRICK, BETH, R. F. D. No. 3, Athens.
KIRK, JOSEPH M., 16 E. Broad St., Columbus.
LEIKIND, MORRIS C., 417 S. Monroe St., Columbus.
LIMING, O. NEAL, 231 S. Charity St., Bethel.
LIPPY, MISS GRACE E., 835 Woodlawn Ave., Springfield.
MCCAUGHEY, WM. J., Dept. of Mineralogy, O. S. U., Columbus.
MCCLURE, O. E., 182 N. Congress St., Athens.
MCGILLIARD, MISS ELEANOR, 10 Parkway, Hartwell, (Cincinnati).
MCMURRAY, W. J., 201 Court St., Wapakoneta.
MCNELLY, WALTER C., 230 E. Church St., Oxford.
MEYERS, MARION T., Dept. of Farm Crops, O. S. U., Columbus.
MILLER, JOSEPH N., Department of Zoology, O. S. U., Columbus.
MOORE, GEORGE M., King Hall, Westerville.
MUNSON, ARTHUR L., 2914 E. 132d St., Cleveland.
NEISWANDER, RALPH B., 26 W. Frambes Ave., Columbus.
O'ROURKE, EDWARD V., Department of Mine Engineering, O. S. U., Columbus.
ODIORNE, JOSEPH M., Biological Laboratory, Western Reserve Univ., Cleveland.
OHMANN, DR. O. A., Dept. of Psychology, Western Reserve Univ., Cleveland.
PARK, J. B., Ohio State University, Farm Crops, Columbus.
PEELE, MILES T., Wilmington, Ohio, (Temp. 1548 Michigan Ave., Columbus).
PITTINGER, WILLIAM J., 1008 Moeller Ave., Akron.
PORTER, JAMES P., Ohio University, Athens.
RICKLY, IRVIN B., 2063½ N. High St., Columbus.
RILLING, MISS PAULINE B., 920 S. Fourteenth St., New Castle, Ind.
SCHAEFER, J. E., 383 Oakland Park Ave., Columbus.
SCHAEFFER, JOHN W., 16 E. Broad St., Columbus.

SCHNEIDER, MISS ELIZABETH, 514 N. Wittenberg Ave., Springfield.
 SIMMONS, GEORGE FINLAY, Cleveland Museum Natural History, Cleveland.
 SLEESMAN, J. P., 128 W. Lane Ave., Columbus.
 SMITH, G. L., 618 S. Main St., Ada.
 SNIDER, GEORGE GOULD, Dept. of Zoology, University of Cincinnati, Cincinnati.
 VAUGHN, LLOYD D., R. F. D. No. 1, Carrothers.
 WALKER, CHARLES F., 53 Latta Ave., Columbus.
 WEBSTER, CHARLOTTE E., 300 Washington Ave., Elyria.
 WILLIAMSON, ERNEST W., Belfast, Ohio.
 YOUNG, BOYD B., 1104 Garfield Ave., Springfield.

Respectfully submitted,

GEORGE D. HUBBARD, Chairman,
 W. H. SHIDELER,

Committee.

Unanimously approved.

Report of the Nominating Committee.

President—HARRY M. BENEDICT.

Vice-Presidents:

Zoology—ARTHUR W. LINDSEY.

Botany—HOMER C. SAMPSON.

Geology—ALLYN C. SWINNERTON.

Medical Sciences—EMERY R. HAYHURST.

Psychology—A. SOPHIE ROGERS.

Physical Sciences—ALPHEUS W. SMITH.

Secretary—WILLIAM H. ALEXANDER.

Treasurer—A. E. WALLER.

Executive Members of Executive Committee—L. G. WESTGATE, L. B. WALTON.

Trustee Research Fund—EDWARD L. RICE.

Publications Committee—E. L. MOSELEY, AUG. F. FOERSTE, H. C. BEARDSLEE.

Library Committee—F. C. BLAKE.

Committee on State Parks—E. LUCY BRAUN, EDMUND SECREST, C. G. SHATZER.

Respectfully submitted,

S. R. WILLIAMS, *Chairman*,
 R. J. SEYMOUR,
 C. F. MOSES,
 M. E. STICKNEY,
 W. H. ALEXANDER.

Columbus, Ohio, April 16, 1927.

Report unanimously approved.

Report of the Committee on Necrology.

To the Ohio Academy of Science:

So far as known to your committee, the Academy has suffered the loss through death of but one member during the year just ended, namely, Prof. Edwin A. Hartley, of the New York State College of

Forestry. The following notes concerning the life and work of Professor Hartley were supplied by Dr. Herbert Osborn, of the Ohio State University:

EDWIN A. HARTLEY.

Our Academy has lost one of its very promising members in the death of Professor Edwin A. Hartley, of the New York State Forestry School, Syracuse University, Syracuse, New York. Professor Hartley died from an acute attack of appendicitis, October 15, 1926, at the age of thirty-three. He was formerly a resident of Oregon and studied at the Oregon Agricultural College, receiving his Bachelor of Science degree there in 1918. During his college career and for some time later he was employed in forestry work by the State of Oregon and the United States Forestry service. He entered Ohio State University in the fall of 1919, taking the graduate work in Entomology and serving as a graduate assistant, remaining in this position for two years, during which time he made an important study of parasitic Hymenoptera, and obtaining his Master of Science degree in 1921. He was engaged as an Entomologist for some time later in the Pennsylvania Bureau of Plant Industry, but in 1922 was elected to the position of Assistant Professor of Entomology in the Syracuse Forestry School, where he continued until the time of his death.

Professor Hartley was a man of very fine personality, a man who made a host of friends and who was very highly esteemed by all of his associates. He was an industrious, energetic student, quick to comprehend, resourceful in ideas, and the kind of student who is a satisfaction and pleasure to his instructors. It was during his connection in the Ohio State University that he became a member of the Ohio Academy of Science and this membership he has retained in his various positions since leaving the state. Aside from his membership in the Ohio Academy of Science, he was a member of a number of scientific associations, among them, the Sigma Xi, The American Association of Economic Entomologists, and the Entomological Society of America.

Respectfully submitted,

L. B. WALTON,
Committee.

Report of the Committee on Resolutions.

Resolved, That the Ohio Academy of Science expresses its thanks—

1. To the Columbus Chamber of Commerce for its cooperation in making this meeting a success by providing two clerks to take care of the registration of members, the sale of banquet tickets, the giving out of information, etc.
2. To the local committee for making such ample and adequate arrangements for this meeting.
3. To the Ohio State University for the use of its buildings and equipments.
4. To the Graduate School of the Ohio State University for making it possible for the members of the Academy to hear Dr. C. E. McClung and Dr. R. A. Millikan.

Respectfully submitted,

E. L. MOSELEY,
W. F. MERCER,
H. M. BENEDICT,
Committee.

Columbus, Ohio, April 16, 1927.

SCIENTIFIC SESSIONS.

The following is the complete scientific program of the meeting:

PUBLIC LECTURES.

The Mechanism of Heredity.....	DR. C. E. McCLUNG
The Birth of a Light Ray.....	DR. R. A. MILLIKAN
Cosmic Rays.....	DR. R. A. MILLIKAN

PAPERS.

1. The physiological gradient and its relation to morphology..... W. H. CAMP
2. Science for non-scientists..... DAVID DIETZ
3. The primary plant associations of Ohio: Their distribution and their significance as habitat indices..... HOMER C. SAMPSON
4. Recent studies of the American eagle..... FRANCIS H. HERRICK
5. Sex and sex-determination in the light of observations and experiments on diecious plants..... JOHN H. SCHAFFNER
6. The present status of Entomology as an applied biological science,
D. M. DeLong
7. The place of human biology in the college curriculum..... A. B. PLOWMAN
8. The apparent need for an elementary cytology course for undergraduate students of zoology and biology..... WALTER C. KRAATZ
9. Some of the more recent conceptions concerning the supporting tissue of the nervous system..... ERNEST SCOTT AND ROBERT A. MOORE
10. A greatly increased range of usefulness for the Leeds and Northrup multiple fixed value standard of self inductance..... R. L. EDWARDS
11. The Dr. B. R. Bales Collection of birds eggs..... JAMES S. HINE
12. The tracheal stalk as supports of the female copulatory organs of the Polydesmid millipedes..... S. R. WILLIAMS
13. The male *Trichopetalum lunatum*—Harger; one of the Milliped family, Chordeumidae..... R. A. HEFNER
14. Linkage studies in *Drosophila hydei*..... WARREN P. SPENCER
15. A survey of State fish hatcheries to determine the damage due to parasites..... RALPH V. BANGHAM
16. The automobile as a factor in the destruction of wild life..... LYNDY JONES
17. Relation of light to the attachment of sessile marine organisms with special reference to those causing fouling of ships' bottoms,
J. PAUL VISSCHER
18. A revisit to Carrol Island, Washington, after twenty years..... LYNDY JONES
19. The sensory hairs of *Tyroglyphus americanus*—Banks..... BIERLY LANDIS
20. Quantitative tests of the "poison gas" of certain Millipedes..... FRED FLETCHER
21. The red bat as a mother..... E. L. MOSELEY
22. Catalase activity and sex..... W. H. CAMP
23. The Sporophylls of *Onoclea sensibilis*..... MAXIMILIAN BRAAM
24. Structure of some Pennsylvanian plants from Illinois..... J. HOBART HOSKINS
25. The inheritance of Brown Pericarp in maize..... MARION T. MEYERS
26. Relic colonies and their significance in the plant migrations of Ohio,
E. LUCY BRAUN
27. Seasonal variations in the physical properties of evergreen leaves,
BERNARD S. MEYER
28. Further studies on Hibernacula in aquatic plants..... H. H. M. BOWMAN
29. Life history and experimental study of soybeans..... H. L. BORST
30. A rational formula for the photosynthetic reaction..... R. B. GORDON
31. Control of sex-reversion in the tassel of Indian corn..... J. H. SCHAFFNER
32. Some hypertrophic developments of aerial organs when used as cuttings,
O. T. WILSON
33. Rapidity of sap rise in ten species of trees as calculated on the basis of Bose's theory..... H. M. BENEDICT
34. The Graphidaceæ of North America..... BRUCE PINK

35. Note on the relation of stem size to leaf number in *Ailanthus*. H. M. BENEDICT
36. Preliminary studies of Ascophyta and related forms on herbaceous legumes. RODERICK SPRAGUE
(Introduced by H. M. BENEDICT)
37. The winter blooming of dandelions. BRUCE FINK
38. The Arthoniaceæ. Miss JOYCE HEDRICK
(Introduced by BRUCE FINK)
39. The genus *Hypoxylon* in Ohio. DON CREAGER
(Introduced by BRUCE FINK)
40. The withering of flower-stalks. Miss ELEANOR MCGILLIARD
(Introduced by H. M. BENEDICT)
41. Waste in clay mining in Ohio. H. E. NOLD
42. The use of X-rays in mineral investigation. WILLIAM J. MCCAUGHEY
43. South America as a future producer of crude petroleum. E. V. O'ROURKE
44. The oil yield of samples of Ohio shale from Adams County,
WALTER H. BUCHER
45. Sponge spicules from the Sunbury shale. WALTER H. BUCHER
46. Geology as a factor in soil classification in the New England States,
G. W. CONREY
47. Geology of Fort Ancient and Oregonia region, Warren County, Ohio,
J. J. WOLFORD
48. Grading of crude petroleum. E. F. CLAGETT
49. Geologic section from the Adirondacks to the Green Mountains across
the Champlain Valley near Ticonderoga. A. C. SWINNERTON
50. Relation of glauconite to unconformities. J. E. SCHAEFER
51. Geological library facilities in Ohio. GEN. EDWARD ORTON, JR.
52. Unveiling of potraits.
(a) W. W. Mather—Remarks by. J. A. BOWNOCKER
(b) Edward Orton—Remarks by. A. F. FOERSTE
53. Nature of geologic seas. GEO. D. HUBBARD
54. Recent discoveries of Ordovician fossils of Richmond age in north-
western Greenland, and their bearing on the problem of climate in
early Paleozoic times. A. F. FOERSTE
55. The economic importance of joints. CHAS. H. BEHRE, JR.
56. Recent studies on early American Chepalopods, and their bearing on
the problem of the origin and evolution of Chepalopods. A. F. FOERSTE
57. Olentangy shale in southern Ohio. R. E. LAMBORN
58. Fossil footprints from the Pennsylvania System in Ohio. J. E. CARMAN
59. Further data on old drainage in northeastern Ohio with some implications,
G. F. LAMB
60. A short description of the Millersburg oil and gas pool. R. W. MELHORN
61. A comparison of the age with the number of somites in the white rat,
F. L. LANDACRE AND H. M. AMSTUTZ
62. The Spermatocytes of the first order in *Branchipus vernalis*,
R. C. BAKER AND C. A. ROSOF
(Introduced by F. L. LANDACRE)
63. The effect of the amount of protein in the previous diet and the nitrogen
excretion of the Albino rat during a fast,
F. A. HITCHCOCK AND A. L. RAWLINS
64. Silicosis; An X-ray study of 919 Ohio quarrymen (Stereo-Roentgenological
demonstration). DANIAL J. KINDEL AND EMERY R. HAYHURST
65. Why the death rate for Columbus is higher than that for Toledo:
A statistical study. RUTH E. MOORE AND EMERY R. HAYHURST
66. Deaths from heart disease in Ohio, with recommendations for the City
of Columbus: A statistical study. EMERY R. HAYHURST
67. Lethal character of various vapors in confined spaces (rat demonstration),
FRED BERRY AND EMERY R. HAYHURST
68. Blood pressure in the rat. ROLLIN R. DURANT
69. The prisms and interprismatic substance of the dental enamel,
SAMUEL W. CHASE
70. Some physico-chemical conditions necessary for light production by
luminous bacteria. (See demonstration No. 8). O. L. INMAN

71. The breathing of combustion products in relation to pneumonia: An experimental study with white rats.....EMERY R. HAYHURST
72. Form perception in the white rat.....PAUL FIELDS
73. Muscular conditions in the after-image in reading.....CARL N. REXROAD
74. Diagnosis and remedial instruction in reading.....LUELLA C. PRESSEY
75. Psychological attributes of hysteria in children.....FLORENCE MATEER
76. Advantages of various gross score formulæ and checking formulæ in statistical computation.....HERBERT A. TOOPS
77. Analysis and treatment of rage in a two-year-old child,
MRS. MARGUERITE R. HERTZ
78. Classroom fears of junior high school pupils...MRS. HARRIET C. KEPLINGER
79. A study of the vocational interests of college women.....O. A. OHMANN
80. A preliminary report on the technique of semi-circular canal extirpation in pigeons together with a tentative statement of results in connection with the recovery of equilibratory functions.....FRANKLIN FEARING
81. A study on the causes and treatment of rage.....MRS. DAVID RALPH HERTZ

DEMONSTRATIONS AND EXHIBITS.

1. An improvised metal cannula.....ROLLIN R. DURANT
2. A new apparatus for the measurement of the psycho-galvanic reflex,
S. R. HATHAWAY
3. The wild flowers of Ohio.....WILLIAM KAYSER
4. Map showing distribution of the vegetation of Ohio,
E. N. TRANSEAU AND H. C. SAMPSON
5. Some new mutants in *Drosophila funebris* and *D. hydei*. WARREN P. SPENCER
6. Phomicrographs to illustrate paper No. 9, Medical Sciences Section,
SAMUEL W. CHASE
7. Polychaete ancestry of the insects. Illustrations from unpublished proof of the American Naturalist.....L. B. WALTON
8. Cultures of luminous bacteria. (Dark room).....O. L. INMAN
9. Cleating and jointing in rocks.....CHAS. H. BEHRE, JR.